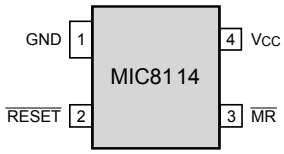
Pin Configuration



4-Lead SOT-143

Pin Description

Pin Number	Pin Name	Pin Function
1	GND	IC Ground Pin
2	/RESET	/RESET goes low if either V_{CC} falls below the supply reset threshold voltage or if /MR is asserted. /RESET remains asserted for one reset timeout period after both V_{CC} exceeds the supply reset threshold voltage and /MR is deasserted.
3	/MR	Manual Reset Input. A logic low on /MR forces a reset. The reset will remain asserted as long as /MR is held low and for one reset timeout period after /MR goes high. This input can be shorted to ground via a switch or driven from CMOS or TTL logic. Pulled high internally through a 20kΩ resistor. Float if unused.
4	V_{CC}	Power supply Input.

Absolute Maximum Ratings(Note 1)

Terminal Voltage
(V_{CC}).....–0.3V to +6.0V
(/MR).....–0.3V (V_{CC} + 0.3V)
Input Current (V_{CC}, /MR)..... 20mA
Output Current (/RESET) 20mA
Rate of Rise (V_{CC}).....100V/µS
Lead Temperature (soldering, 10 sec.)..... 300°C
Storage Temperature (T_S) ..... –65°C to +150°C
ESD Rating..... 3kV

Operating Ratings(Note 2)

Operating Temperature Range
MIC8114TU ..... –40°C to +85°C
Power Dissipation (T_A = +70°C) 320mW

Electrical Characteristics

For typical values, V_{CC} = 3.3V; T_A = 25°C, **bold** values indicate –40°C ≤ T_A ≤ +85°C; unless noted

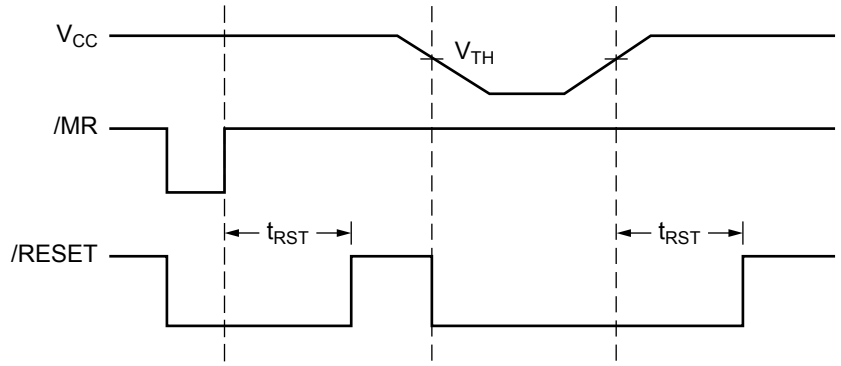
Symbol	Parameter	Condition	Min	Typ	Max	Units
V_{CC}	Operating Voltage Range	T_A = –40°C to 85°C	**1**		**5.5**	V
I_{CC}	Supply Current			5	**15**	µA
V_{TH}	Reset Voltage Threshold		**3.00**	3.08	**3.15**	V
t_{RST}	Reset Timeout Period		**790**	1200	**1800**	ms
V_{OH}	/RESET Output Voltage	I_{SOURCE} = 500µA	**0.8×V_{CC}**			V
V_{OL}	/RESET Output Voltage, V_{OL}	V_{CC} = V_{TH} min, I_{SINK} = 1.2mA			**0.3**	V
		V_{CC} = 1V, I_{SINK} = 50µA, T_A = –40°C to +85°C			**0.3**	V
	/MR Minimum Pulse Width		**10**			µs
	/MR to Reset Delay			0.5		µs
	/MR Input Threshold, V_{IH}		**0.7×V_{CC}**			V
	/MR Input Threshold, V_{IL}				**0.25×V_{CC}**	
	/MR Pull-Up Resistance		**10**	20	**30**	kΩ
	/MR Glitch Immunity			100		ns

Note 1. Exceeding the absolute maximum rating may damage the device.

Note 2. The device is not guaranteed to function outside its operating rating.

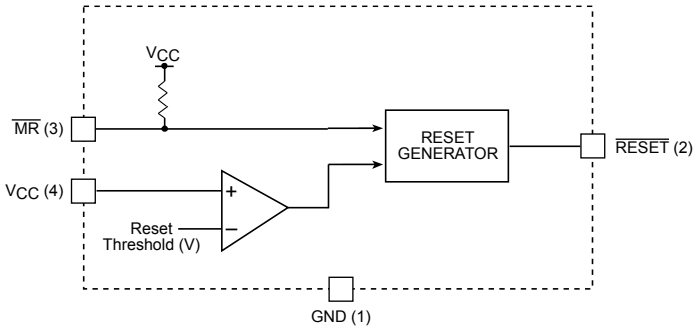
Note 3. Devices are ESD sensitive. Handling precautions recommended. Human body model, 1.5k in series with 100pF.

Timing Diagram



Reset Timing Diagram

Functional Diagram



Applications Information

Microprocessor Reset

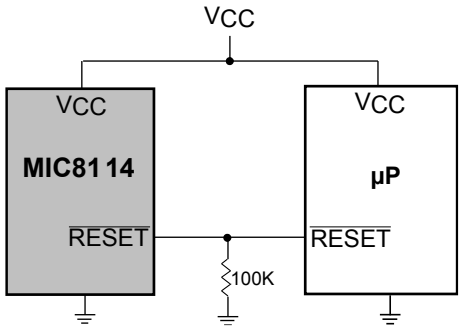
The /RESET pin is asserted whenever V_{CC} falls below the reset threshold voltage. The reset pin remains asserted for a period of 790ms after V_{CC} has risen above the reset threshold voltage. The reset function ensures the microprocessor is properly reset and powers up into a known condition after a power failure. /RESET will remain valid with V_{CC} as low as 1V.

V_{CC} Transients

The MIC8114 is relatively immune to the negative-going V_{CC} glitches below the reset threshold. Typically, a negative-going transient 125mV below the reset threshold with a duration of 20µs or less will not cause a reset.

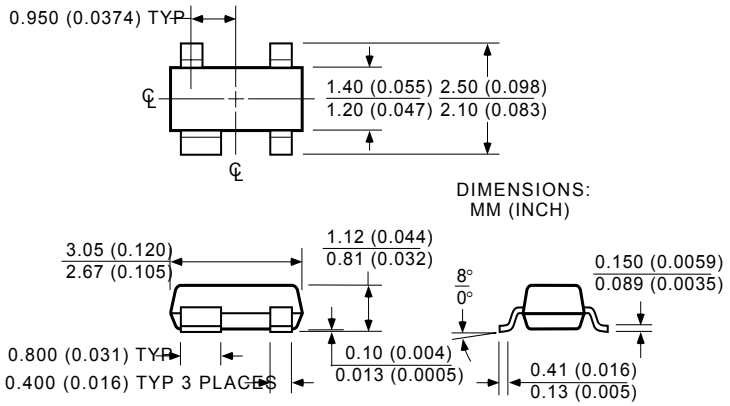
/RESET Valid at Low Voltage

A resistor can be added from the /RESET pin-to-ground to ensure the /RESET output remains low with V_{CC} down to 0V. A 100kΩ resistor connected from /RESET-to-ground is recommended. The resistor should be large enough not to load the /RESET output and small enough to pull-down any stray leakage currents



/RESET Valid to V_{CC} = 0V

Package Information



4-Lead SOT-143 (UT)

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA

TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB http://www.micrel.com